COMPLIANCE COMPONENT TEMPLATE

DEFINITION

Name	OSI Layer 2 - Data Link Layer
Description	The data link layer provides reliable transit of data across a physical network link. Different data link layer specifications define different network and protocol characteristics, including physical addressing, network topology, error notification, sequencing of frames, and flow control. Physical addressing (as opposed to network addressing) defines how devices are addressed at the data link layer. Network topology consists of the data link layer specifications that often define how devices are to be physically connected, such as in a bus or a ring topology. Error notification alerts upper-layer protocols that a transmission error has occurred, and the sequencing of data frames reorders frames that are transmitted out of sequence. Finally, flow control moderates the transmission of data so that the receiving device is not overwhelmed with more traffic than it can handle at one time. The Institute of Electrical and Electronics Engineers (IEEE) has subdivided the data link layer into two sublayers: Logical Link Control (LLC) and Media Access Control (MAC). The Logical Link Control (LLC) sublayer of the data link layer manages communications between devices over a single link of a network. LLC is defined in the IEEE 802.2 specification and supports both connectionless and connection-oriented services used by higher-layer protocols. IEEE 802.2 defines a number of fields in data link layer frames that enable multiple higher-layer protocols to share a single physical data link. The Media Access Control (MAC) sublayer of the data link layer manages protocol access to the physical network medium. The IEEE MAC specification defines MAC addresses, which enable multiple devices to uniquely identify one another at the data link layer.
Rationale	The Open System Interconnection (OSI) reference model describes how information from a software application in one computer moves through a network medium to a software application in another computer. The OSI reference model is a conceptual model composed of seven layers, each specifying particular network functions. The model was developed by the International Organization for Standardization (ISO) in 1984, and it is now considered the primary architectural model for intercomputer communications.
Benefits	The OSI model divides the tasks involved with moving information between networked computers into seven smaller, more manageable task groups. A task or group of tasks is then assigned to each of the seven OSI layers. Each layer is reasonably self-contained so that the tasks assigned to each layer can be implemented independently. This enables the solutions offered by one layer to be updated without adversely affecting the other layers.

ASSOCIATED ARCHITECTURE LEVELS

Specify the Domain Name	Infrastructure
Specify the Discipline Name	Network
Specify the Technology Area Name	Protocols
Specify the Product Component Name	

COMPLIANCE COMPONENT TYPE

Document the Compliance Component Type	Guideline

Component Sub-type	

COMPLIANCE DETAIL

State the Guideline, Standard or Legislation	ATM FDDI Frame Relay HDLC MPLS PPP SDLC SLIP SNA X.25 IEEE 802.1 Internetworking IEEE 802.1d Spanning Tree Protocol IEEE 802.1s Multiple Spanning Trees IEEE 802.1q VLAN Frame Tagging IEEE 802.2 Logical Link Control IEEE 802.3 Ethernet (CSMA/CD) IEEE 802.3u Fast Ethernet IEEE 802.3z Gigabit Ethernet IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.4 Token Bus IEEE 802.5 Token Ring IEEE 802.6 Distrubuted Queue Dual Bus (MAN) IEEE 802.9 Voice/Data Integration (IsoEnet) IEEE 802.10 LAN Security IEEE 802.11b 11 Meg wireless Network IEEE 802.12 Demand Priority Access Lan (100BaseVG-AnyLan) IEEE 802.15 Wireless Personal Area Network IEEE 802.16 Wireless Metropolitan Area Networks IEEE 802.17 Resilient Packet Ring
Document Source Reference #	

Compliance Sources

Name	Cisco	*Website*	[http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/introint.htm]
Contact Information			
Name		*Website*	
Contact Information			

KEYWORDS

List Keywords	Layer 2, OSI, Data Link, LLC, MAC

COMPONENT CLASSIFICATION

Provide the Classification	☐ *Emerging* ☒ *Current* ☐ *Twilight* ☐ *Sunset*
Sunset Date	

COMPONENT SUB-CLASSIFICATION

Sub-Classification	Date	Additional Sub-Classification Information
☐ *Technology Watch*		
☐ *Variance*		
☐ *Conditional Use*		

Rationale for Component Classification

Document the Rationale for Component Classification	

Migration Strategy

Document the Migration Strategy	

Impact Position Statement

Document the Position Statement on Impact	

CURRENT STATUS

Provide the Current Status	☐ *In Development* ☐ *Under Review* ☒ *Approved* ☐ *Rejected*

AUDIT TRAIL

Creation Date	9/2/04	*Date Approved / Rejected*	9/14/04
Reason for Rejection			
Last Date Reviewed		*Last Date Updated*	
Reason for Update			